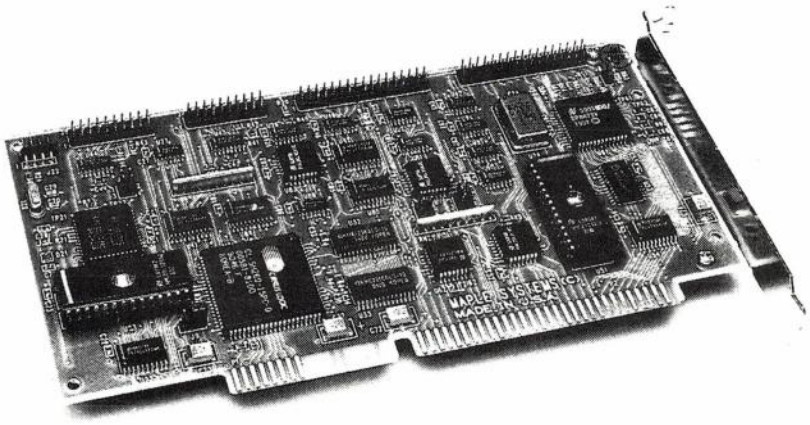
MAPLE SYSTEMS, INC.



MC-1175 INSTALLATION GUIDE

PC AT COMPATIBLE ESDI DISK CONTROLLER

MC-1175 INSTALLATION GUIDE

This guide is designed to minimize the user's efforts in low-level formatting of drives. As you go through the installation procedures, you will find that most of the terminology has been explained in the EDIT WINDOW. Simply default all parameters in the EDIT WINDOW if you are not sure what values to use. Optimal values have been calculated and used as defaults.

INSTALLATION

1. Plug the controller into your PC AT compatible system,
   a. connect a floppy cable from J2 to both floppy drives,
   b. connect a 20-pin drive cable from J4 to drive 0, and from J5 to drive 1 (if installed),
   c. connect a 34-pin drive cable from J3 to both hard drives.

   NOTE: If you are using two drives, set both drives to DRIVE 1 by adjusting the jumper on the drive. Usually there are 7 options for an ESDI drive. Other jumpers on the drive should also be properly set.
2. Run "SETUP" at Drive A prompt and set Drive C to Type 1. If Drive D is also installed, set to Type 1 as well.
3. Reboot the system and run "DEBUG"
   Type: A>DEBUG <CR>
   -G=C800:5 <CR>
4. The Maple Configuration menu will display:

CONFIGURATION MENU (Version 1.1) Copyright © Maple Systems, Inc., 1991
Formatting Drive 0 Formatting Drive 1 Logical Mapping Exit

5. Use UP/DOWN ARROW to move bar and select option.
6. Select the function "Formatting Drive 0". The controller will read configuration parameters from the drive and display them on the screen:

FORMAT MENU © MSI, 1991						
Drive	**Type**	**Cylinder**	**Head**	**Sector**	**LZone**	**Capacity (MB)**
0	**ESDI**	**2100**	**15**	**82**	**2100**	**1320**

Interleave 1:1 Headskew 6 CylinderSkew 12 SpareSector NO Defect List Manufacturer **FORMAT** Head 0 Cylinder 0	Will erase all the data on the disk!! Press <Enter> to confirm

7. Use UP/DOWN ARROW to select the user-configurable field, i.e. interleave factor, head/cylinder skew. Press Space Bar to set values or just move the cursor to default them.
8. Select the FORMAT field. Press the Space Bar to select REGULAR FORMAT. VERIFY allows users to scan their disk for bad sectors; and if you need more intensive verification on your drive, select INTENSIVE FORMAT. The controller will then use up to 4 different patterns for verification.
9. After format is complete, press <ESC> to return to the main menu. Depending on the drive size, one of the following mapping schemes will be adopted:
   - If the drive is less than 528MB and has fewer than 1024 cylinders, no mapping is required.
   - If the drive is less than 528MB but has more than 1024 cylinders: Sector mapping is required for all operating systems. To enable sector mapping, select from the main menu "LOGICAL MAPPING". Next press the space bar to select "ENABLE 63-SECTOR MAPPING".
   - If the drive is larger than 528MB:
     For DOS, track mapping is required. To perform track mapping, select from the main menu "LOGICAL MAPPING". Then move the cursor to the next line and press the space bar to select "ENABLE TRACK MAPPING".

     For OS/2, XENIX, UNIX and Novell Netware, sector mapping is required. To enable sector mapping, select from the main menu "LOGICAL MAPPING". Next press the space bar to select "ENABLE 63-SECTOR MAPPING". (Note: OS/2, XENIX, UNIX and Novell automatically handle track mapping.)

After completion of the proper mapping sequence, press <ESC> to return to the main menu.

LOGICAL MAPPING MENU © MSI, 1991	
Drive 0	Enable 63-Sector Mapping Enable Track Mapping
Drive 1	Enable 17-Sector Mapping Disable Track Mapping
Press <Enter> to confirm	

For further explanation of SECTOR MAPPING and TRACK MAPPING options please refer to the below:

For SECTOR MAPPING options are:

- DISABLE SECTOR MAPPING: This will disable any mapping on the drive.
- ENABLE 63-SECTOR MAPPING: This will translate the drive into a 63-sector drive, allowing for cylinders greater than 1024 to be used.
- ENABLE 17-SECTOR MAPPING: This will translate the drive into a 17-sector drive which may be required by operating systems other than DOS.

For TRACK MAPPING options are:

- ENABLE TRACK MAPPING: This will translate the drive into a 64-head with 63-sector drive.
- DISABLE TRACK MAPPING: This will disable any mapping on the drive.

10. Repeat steps 5 to 9 for DRIVE 1, if installed.
11. Install your operating system software. Run DOS FDISK for disk partition and DOS FORMAT for logical formatting on both drives. Other operating systems such as OS/2, XENIX, UNIX or Novell Netware may also be installed with or without the presence of the DOS environment.

    NOTE: If your system allows, you may want to shadow the 16K on-board BIOS (starting at C800) for a faster transfer rate. However, this shadow must be turned off to update mapping.

NOVELL DISK DUPLEXING: (Ver. 3.1x)

Two MC-1175 boards (Card 0 and Card 1) can co-exist to handle Novell disk duplexing. The user may connect up to 2 drives on each controller. Each of the drives attached to Card 0 will be duplexed to Card 1.

INSTALLATION:

a. Set jumper configuration as follows:
   CARD 0 : Primary Port (1F0-1F7)
   IRQ 14
   BIOS ADDRESS C8000

   CARD 1 : Secondary Port (170-177)
   IRQ 15
   BIOS ADDRESS CC000

   (**NOTE:** If D0000 or D8000 is used for CARD 0, then D4000 or DC000 must be used for CARD 1.)

b. Follow NetWare installation procedures. When prompted to load the disk device driver, type the following commands:

Load ISADISK /l	(note: / followed by lower case L)
1F0	(I/O port for CARD 0)
E	(IRQ 14 for CARD 0)
Load ISADISK /l	(note: / followed by lower case L)
170	(I/O port for CARD 1)
F	(IRQ 15 for CARD 1)

c. Complete installation procedures.

NOVELL COMPSURF (Ver. 2.1x and below)

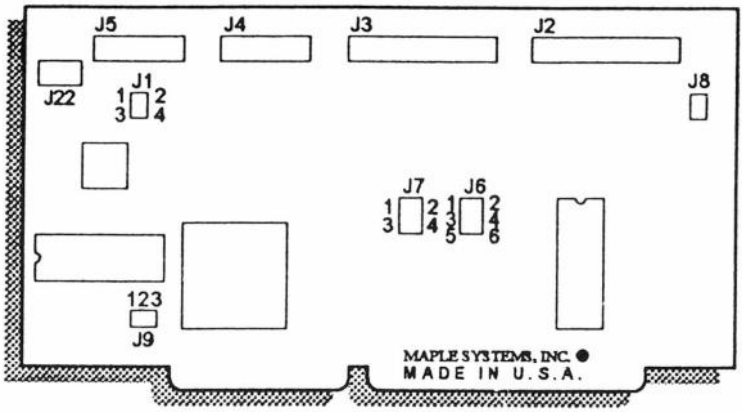
Bypassing the embedded command of Novell COMPSURF (Comprehensive Surface Analysis) is not recommended. However, if desiring to override COMPSURF, simply press. <ALT>F10 after the test of Track '0' has been completed.

FUNCTIONAL:

Disk Interface	Hard-Wired ESDI
Disk Transfer Rate	10, 15, 20, 24 MBit/S
Number of Drives	2 per controller
Maximum Sector/Track	127
Maximum Head/Cylinder	64/4096
Disk Interleave	1:1
Max Storage Access DOS	4 GByte
On-Board Cache Buffer	64 KB
Max I/O Bus Speed	16 MHz
Floppy Drives Supported	1.44 MB, 1.2 MB 720 KB & 360 KB
ECC	56 Bits
On-Board BIOS with	
Color Edit Menu	Standard
Low Level Format	Standard
Defect Management	Standard
Drive Parameter Select	Standard
17 Sector Mapping	Standard
63 Sector Mapping	Standard
>1024 Cylinder Map	Standard
>528 MB Drive Support	Standard
Head Skew Select	Standard
Cylinder Skew Select	Standard
Track Mapping	Standard

HARDWARE:

Size	3.9" × 8"
Voltage	+ 5V DC
Current	0.8A
Temperature	0-60° C
Relative Humidity	0-95% Non-condensing
Altitude	-200 to 10,000 feet
Warranty	1 year
FCC Test	Certified
Novell Netware	Certified



JUMPER AND CONNECTION DEFINITION

LOCATION			USAGE
J1	1	2	Reserved
	3	4	Reserved
J2			Floppy Drive Cable
J3			Hard Disk 34-pin Cable
J4			Drive 0 20-pin Cable
J5			Drive 1 20-pin Cable

J6

1 2	3 4	5 6	On-Board BIOS Address
OUT	OUT	OUT	C8000
OUT	OUT	IN	CC000
OUT	IN	OUT	D0000
IN	OUT	OUT	D4000
IN	IN	OUT	D8000
IN	OUT	IN	DC000
OUT	IN	IN	Disable

J7

	1 2	3 4
IN	170-177 370-377	Floppy Disable
OUT	1F0-1F7 3F0-3F7	Floppy Enable

J8

1	2	(IN)	Floppy Drive Dual Speed Enable
1	2	(OUT)	Floppy Drive Dual Speed Disable

J9

1	2	IRQ15
2	3	IRQ14

J22 LED Connector

TROUBLESHOOTING GUIDE

- **Message "DRIVE C FAILURE" at boot:**
  Set the jumpers on the drive to select DRIVE ADDRESS #1. Then check that DRIVE 0 is connected to the non-twisted end and DRIVE 1 (if installed) to the twisted end of the cable.

- **Message "DRIVE C ERROR" at boot:**
  This is OK for a new installation. Continue with procedures.

- **Won't boot to Drive A:**
  Check the floppy cable. Make sure that Connector J2 is properly connected, with Pin 1 aligned. If only one floppy drive is used, the connector on the twisted end of the cable should be used.

- **Boot to Drive A, but won't run DEBUG:**
  There may be a BIOS address conflict between the MC-1175 and other boards such as a VGA card using the same C8000 for the BIOS address. Change the on-board BIOS address on the MC-1175. For example change the address to D0000 by inserting a jumper on Pin 3 and 4 of J6. If problem remains, try other address combinations.

- **DEBUG OK, but wrong drive parameters retrieved:**
  a. Check that the 20-pin cable(s) and the 34-pin cable are properly connected to J3, J4 and J5, with Pin 1 aligned.
  b. Refer to the drive manual. Be sure that the jumpers on the drive are properly set. Typically, set DRIVE NUMBER to #1 for both drives; two drives should be in DAISY CHAIN and the last drive should be terminated; select HARD SECTOR; select DATA LENGTH of a sector to 512 Bytes/Sector.

- **Won't boot to C Drive:**
  Check that the drive type in the CMOS RAM is in Type 1.

- **Read or Write errors:**
  Check that the terminator on each drive is properly set. Also check that the power supply is able to provide enough current for the whole system.

- **Drive capicity after format is less than expected:**
  If the drive is greater than 528MB or has more than 1024 cylinders, make sure that you have correctly performed track or sector mapping function.

Copyright 1992 Maple Systems, Inc. All rights reserved.

IBM PC/AT and OS/2 are registered trademarks of International Business Machines Corporation. MS-Dos is a registered trademark of Microsoft Corporation. UNIX is a registered trademark of AT&T. XENIX is a registered trademark of Santa Cruz Operations. Netware is a registered trademark of Novell Corporation.

MAPLE SYSTEMS, INC.
2380 Qume Dr., Suite B
San Jose, CA 95131